

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled).
2. (Cancelled).
3. (Currently Amended) An isolated polynucleotide encoding a polypeptide selected from the group consisting of: ~~of claim 1~~
 - a) a polypeptide comprising SEQ ID NO:1;
 - b) a polypeptide comprising an amino acid sequence at least 90% identical to SEQ ID NO:1;
 - c) a biologically active fragment of SEQ ID NO:1, wherein the fragment has carbonic anhydrase activity; and
 - d) an immunogenic fragment comprising at least about 10 amino acids of SEQ ID NO:1, wherein the fragment has immunological activity of carbonic anhydrase.
4. (Currently Amended) An isolated polynucleotide encoding a polypeptide of ~~claim 2~~ SEQ ID NO:1.
5. (Currently Amended) An isolated polynucleotide of claim 4 ~~selected from the group consisting of SEQ ID NO:4-6 comprising SEQ ID NO:4.~~
6. (Original) A recombinant polynucleotide comprising a promoter sequence operably linked to a polynucleotide of claim 3.
7. (Currently Amended) A An isolated cell transformed with a recombinant polynucleotide of claim 6.
8. (Original) A transgenic organism comprising a recombinant polynucleotide of claim 6.

9. (Currently Amended) A method for producing a polypeptide ~~of claim 1~~
encoded by the polynucleotide of claim 3, the method comprising:

- a) culturing a cell under conditions suitable for expression of the polypeptide, wherein said cell is transformed with a recombinant polynucleotide, and said recombinant polynucleotide comprises a promoter sequence operably linked to a polynucleotide ~~encoding the polypeptide of claim 1 of claim 3~~, and
- b) recovering the polypeptide so expressed.

10. (Cancelled).

11. (Currently Amended) An isolated polynucleotide selected from the group consisting of:

- a) a polynucleotide comprising a polynucleotide sequence ~~selected from the group consisting of SEQ ID NO:4-6 of SEQ ID NO:4~~,
- b) a naturally occurring polynucleotide comprising a polynucleotide sequence at least 90% identical to a polynucleotide sequence ~~selected from the group consisting of SEQ ID NO:4-6 of at least about 60 contiguous nucleotides of SEQ ID NO:4~~,
- c) a polynucleotide complementary to a polynucleotide of a),
- d) a polynucleotide complementary to a polynucleotide of b), and
- e) an RNA equivalent of a)-d).

12. (Cancelled).

13. (Withdrawn) A method for detecting a target polynucleotide in a sample, said target polynucleotide having a sequence of a polynucleotide of claim 11, the method comprising:

- a) hybridizing the sample with a probe comprising at least 20 contiguous nucleotides comprising a sequence complementary to said target polynucleotide in the sample, and which probe specifically hybridizes to said target polynucleotide, under conditions whereby a hybridization complex is formed between said probe and said target polynucleotide or fragments thereof, and
- b) detecting the presence or absence of said hybridization complex, and, optionally, if present, the amount thereof.

14. (Cancelled).

15. (Withdrawn) A method for detecting a target polynucleotide in a sample, said target polynucleotide having a sequence of a polynucleotide of claim 11, the method comprising:

- a) amplifying said target polynucleotide or fragment thereof using polymerase chain reaction amplification, and
- b) detecting the presence or absence of said amplified target polynucleotide or fragment thereof, and, optionally, if present, the amount thereof.

16.-26. (Cancelled).

27. (Withdrawn) A method for screening a compound for effectiveness in altering expression of a target polynucleotide, wherein said target polynucleotide comprises a sequence of claim 5, the method comprising:

- a) exposing a sample comprising the target polynucleotide to a compound, under conditions suitable for the expression of the target polynucleotide,
- b) detecting altered expression of the target polynucleotide, and
- c) comparing the expression of the target polynucleotide in the presence of varying amounts of the compound and in the absence of the compound.

28. (Withdrawn) A method for assessing toxicity of a test compound, said method comprising:

- a) treating a biological sample containing nucleic acids with the test compound;
- b) hybridizing the nucleic acids of the treated biological sample with a probe comprising at least 20 contiguous nucleotides of a polynucleotide of claim 11 under conditions whereby a specific hybridization complex is formed between said probe and a target polynucleotide in the biological sample, said target polynucleotide comprising a polynucleotide sequence of a polynucleotide of claim 11 or fragment thereof;
- c) quantifying the amount of hybridization complex; and
- d) comparing the amount of hybridization complex in the treated biological sample with the amount of hybridization complex in an untreated biological sample, wherein a difference in the amount of hybridization complex in the treated biological sample is indicative of toxicity of the test compound.

29.-50. (Cancelled).

51. (New) The polynucleotide of claim 3 encoding a polypeptide comprising an amino acid sequence at least 95% identical to SEQ ID NO:1.